REVIEWS OF BOOKS.

Die Mikroorganismen der Mundhœhle. Von W. D. Miller, Professor in Berlin. Leipzig. George Thieme. 1889.

The Microorganisms of the Mouth.

This work of three hundred pages deals exclusively with the microorganisms to be found in the buccal cavity, both in health and disease. The name of the author is already known to those interested in this branch of bacteriological research through his publications during the past few years in which he has contributed greatly to our knowledge upon these matters. For the convenience of those who are not conversant with the mysteries of bacteriology the author has happily introduced a chapter upon the morphology and biology of the various forms of bacteria. The classification adopted is that of de Bary and the definition of the species and their mode of propagation is very concise, lucid and free from any confusing argumentative phrasing. To the uninitiated, therefore, the various chapters thus introduced cannot be confusing, while to the advanced student they can scarcely be said to be objectionable.

The Koch methods of culture have apparently been adopted in these investigations though with some modifications called for by the special features of the subject. The author, finding that certain bacteria do not manifest themselves when placed at first upon gelatine plates, has adopted the method of first cultivating in agar-agar, thus obtaining bacterial growths which would otherwise escape notice if gelatine was adopted at the outset. The multitude of microbes found in the mouth are no doubt encouraged in their growth by the nature of the functions and the presence of certain material in this cavity. Aside from the cavities in teeth, the seat of diseases, the saliva, mucus, desquamated epithelium and food particles all afford media of growth to these organisms. Their presence has long been a matter of commonplace fact, but it is only within the past few years that they have been the subject of more thorough painstaking study. The new impetus given to the whole subject of bacteriology by the German school of savants and the new modes of culture upon solid media have no doubt simplified this subject to an astonishing degree. It is to be regretted, however, that in the very subject under discussion, the tendency of observers to multiply the varieties of bacteria and name the same even after passing notice should have led to a very confusing collection of studies, each rather being a repetition of former work by other authors but not adding anything thereto. Thus different authors have named the same organisms with different names. This has given us a hopeless confusion, rather than a perfection of knowledge. The accidental presence of rare forms of cocci, streptococci, etc., are no doubt a matter of interest, but if we mistake not the constancy of habitation or growth is a point of cardinal importance in the Koch school. We are anxious to find the forms of bacteria which are invariably present in a disease and of influence in the same. Thus with the mouth it is no doubt interesting to describe all forms of yeast fungi from the atmosphere which may have strayed into the buccal cavity but these can scarcely be microorganisms of any moment in the processes which play their role either in health or disease in this cavity. Thus we will not appear to stray from the subject if we mention the work of Escherich upon the intestinal bacteria in the new born and infant. Here out of the mass of extraneous microorganisms found in isolated cases only two forms are constant and have stood the test of time. This part of Escherich's work will stand, the rest will be consumed by more advanced and perfected methods. The author had deserved well of the profession if it had been only to classify certain constant forms of bacteria found in the healthy condition in the mouth as also those in certain carious conditions of the teeth. This he has done. There are bacteria which can not be cultivated and those allowing of cultivation by the known methods. Those of non-pathogenic and those of pathogenic significance. The above classifications have been adopted by the author. There are already in the literature of the subject seven forms of pathogenic microorganisms found in the mouth. To these micrococci and bacilli our author has added by his labors four new varieties the micrococcus gingivæ pyogenes, bacterium gingivæ pyogenes, bacillus dentatis viridus, and bacillus pulpæ pyogenes. These have been met in disease states of the teeth. Injected into mice they cause either abscess or death within a short period. Wounds of the buccal cavity have been known to result seriously from the infection of the wound with pathogenic microorganisms; osteitis, phlebitis, and death has been observed in four cases by Mosetig-Moorhof, caused by broken and inflamed tooth roots.

The author's investigations upon caries of the enamel have led to the conclusion that we have a chemico-parasitic process. The enamel prisms are loosened by the acids produced by the fermentation of carbohydrates. The prisms are loosened and either cast off or the microorganisms penetrate in the spaces between them, pry them asunder and disintegrate the remaining organic substance. The action of these bacteria is secondary to the action of the acid which they produce. The bacteria do not affect healthy enamel in the absence of acids. The cuticle of the enamel becomes at first involved with parasites which cause it to become fissured and brittle. A perforation of such a cuticle shows the presence of myriads of these microorganisms, giving the whole a finely granular appearance. The caries of the dentine proceeds by an invasion of microorganisms in the direction of the canals. Some canals are invaded with cocci, others with bacilli, others have a mixed infection. As a rule that species of bacterium which is capable, in its growth, of affording to the substrata a large percentage of acid, and which has a high peptonizing power with limited access of air, will ceteris paribus have the greatest destructive power. The cement caries proceeds by a decalcification of a small zone of cement at the neck of the tooth and its subsequent invasion and disintegration by microorganisms. The first stage of all tooth caries is therefore the production of acids by the fermentation of particles of food, the decalcification of the tooth substance by the acids, and the second stage the invasion and disintegration of the decalcified tooth substance by bacteria. The prophylaxis of tooth caries consists in a hygiene conducive to the best development of the teeth, the mechanical removal of food particles by cleansing, the avoidance of food having a compromising action on the integrity of the teeth, the use of antiseptics. Among the antiseptics mentioned are sublimate 1-2500, salicylic acid 1-200 or 300. Listerine salve though agreeable is weak in action. Experiments of the author upon antiseptic fillings have led to the conclusion that the copper amalgam filling has a strong antiseptic action on the walls of the tooth cavity and is very efficient in preventing secondary caries.

The author reviews some of the mycoses of the mucous membranes of the mouth but in these chapters he has compiled the work of others or confessed our incomplete knowledge upon the same. There are finally some fragmentary remarks upon diphtheria, syphilis, actinomycosis. Some beautiful chromo lithographs illustrating the chromogenic organisms found in the buccal cavity.

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